

NEW YORK, SUNDAY, JANUARY 4, 1914. Copyright, 1914, by the Sun Printing and Publishing Association.

CITY'S FIRST SKYSCRAPER NOW BEING RAZED WHILE NEW GIANT 800 FEET HIGH IS PLANNED

Original Steel Frame Building Lasted Only Twenty-six Years but Gave to New York Pattern for All Its Great Structures

WRECKERS will finish within a few days taking down New York's first skyscraper. It is 129 feet high. Plans were placed on file with the Bureau of Buildings last week for the proposed building of the Pan-American States Association to occupy a whole block and to be 801 feet high, or 50 feet higher than the Woolworth tower, which now holds the record for height among the buildings of the world. It is just twenty-six years since the city was thrilled by the announcement of a high building to be erected under a new plan of construction in which a steel frame formed an essential part, and many were the predictions of its failure. Nobody is thrilled to-day by the Pan-American building plans, for they mark a step only toward the 1,000 foot building which every one believes is bound to come unless the municipal authorities take action soon on the proposed height limitation.

The story of the old Tower Building is one of the best illustrations that can be given of the rapidity with which New York city has moved during the last quarter century. It came as an experiment, gained success in spite of general ridicule and finally formed a beginning for all high buildings of recent times. Now it has outlived its usefulness. It cannot compete with the giants of its own family and, like all ancestors, it is to be laid away in its grave, which in this case is the second hand material man's yard.

Steel frame buildings like the Tower Building and the Columbia Building, which followed it two years later, resulted from the generally recognized advantages of buildings higher than the five or six story structures that prevailed up to the last quarter of the last century. The Chicago fire had taught the danger of non-fireproof buildings, and here in New York builders felt that structures of such height that firemen could not combat fires on upper stories would be but poor investments. It was at a time while such ideas were uppermost in the minds of men interested in the upbuilding of New York that Bradford L. Gilbert filed the plans for the Tower Building at 50 Broadway.

Up to about 1870 low buildings had been the rule also because of the imperfection of the elevator. Up to that year there were few passenger elevators in the city. The first elevators were operated by contrivances which would attract as much notice in this day as then. There were great iron screws which reached the whole height of the elevator well, passing through the centre of the cars in a steel sleeve. The turning of the screw raised or lowered the cars. The elevators were slow but safe.

It was the improvement in elevator machinery in the '80s that actually made the erection of high buildings possible. Up to that time there were a few ten story structures equipped with the old fashioned types, but their operation was such as to give little attraction to offices on upper stories on higher buildings. It also was decreed about that time that buildings of more than six stories should be fireproof. High buildings even at that time were not popular because in non-fireproof types outer walls had to be made so heavy that the most valuable space on the ground floor was taken up and foundation work was unduly expensive. There was great relief among builders therefore when the Tower Building was erected and demonstrated its own success.

Plans for the structure were filed on April 17, 1888. It has a frontage of 21 feet 6 inches and is 105 feet long. It was intended to provide a Broadway connection to building of much greater size on New street. The walls were built in novel form. Instead of solid brick walls vertical lines of cast iron columns were placed at varying distances up to about eighteen feet apart, leaving at the foot of each line a cast iron shoe resting on the foundation walls at the basement floor level. Some of these columns extend up to the level of the eighth story floor and part extend to the roof level. The columns are in lengths corresponding with the heights of the various stories and are bolted together. On top of the seventh story columns rest a line of wrought iron girders and from that point on to the top of the structure solid brick walls rise twenty inches thick for the first thirty-two feet and then sixteen inches thick for twenty-five feet.

Roller beam girders between the upright columns and connected to them at each floor level up to the seventh support the floors and carry the weight of the walls. Twelve inches thick and built of brick, twelve inches thick and built of brick, above the seventh floor the walls sustain themselves, the steel in this part of the building being merely for bracing the floors and elevator shafts. The upper part really is an old fashioned brick building placed on top of the steel skeleton lower part. Bracing against wind pressure is provided by diagonal steel braces carried between each of the vertical columns and so constructed as to transfer to the foundations a possible wind pressure of 16 tons such as would be in a hurricane of seventy miles an hour.

A publication of the time of the erection of the Tower Building tells the interesting story that the building laws did not provide for any such composite construction. So the application of the architect to build was placed before the Board of Examiners of the Building Department, which was a board empowered by law to grant or reject applications in cases where provision of the law did not directly apply or where an equally good or desirable

PAN-AMERICAN BUILDING
TO BE ERECTED ON BLOCK,
BROADWAY 84th AND 57th & 58th STS.
44 STORIES 801 FEET.

METROPOLITAN TOWER
MADISON AVE. AND 24th ST.
50 STORIES,
693 FEET, 1907.

SINGER BUILDING
149 BROADWAY.
41 STORIES,
612 FEET,
1906

WOOLWORTH BUILDING
1911. 55 STORIES,
750 FEET.

PARK ROW
SYNDICATE BLDG.
26 STORIES,
386 FEET,
1898.

COLUMBIA BLDG., 1890
29 BROADWAY,
12 STORIES,
145 FEET.

AMERICAN SURETY BLDG.
21 STORIES, 312 FEET, 1897.

TOWER BUILDING
50 BROADWAY,
11 STORIES, 129 FEET,
1888.

Twenty-five years progress in the art of building skyscrapers shows an advance from an eleven-story building 129 feet high to a forty-four story building 801 feet high. City objection alone can prevent the erection of a 1,000 foot building.

LAST YEAR'S BUILDING.

Far Below Any Period Since 1900, When Code Went Into Effect.

Statistics of building operations in the Borough of Manhattan for the year 1913, as given out by Building Superintendent Rudolph P. Miller, shows plans were filed for 577 new buildings, representing a total investment of \$73,979,685. The year was the smallest in building operations since 1900, which was the year the new building code went into effect, and the architects and owners

form of construction was proposed than that required by the law. William J. Fryer, who was a member of that board, writing later, said that he well remembered the discussion evoked in the board when Mr. Gilbert's plans were presented for action. The strong preference of some of the members for solid masonry work, coupled with their prejudice against iron work in general, made it very doubtful for a time whether they would sanction this particular combination of ironwork

and brickwork; but finally the board approved the application. It is said that had Mr. Gilbert followed the method of construction then in use in erecting the Tower Building the thickness of walls required for an eleven story

building would have left no more room on the ground floor beyond a narrow hallway. He conceived a better method however, and to him belongs credit for having first in the world erected a building in which the weight of the walls as

well as the floors was transmitted through girders and columns to the footings. It was this small beginning that made possible such giants as the Woolworth, Singer and Metropolitan towers and the coming Pan American Building.

filed everything they could during 1899, therefore the lack of building plans in 1900. The amount of money involved last year would be much less if the plans for the contemplated fifty-one story Pan-American building had not been filed at the last minute of the old year, thus increasing the amount by \$12,500,000.

During last year plans were filed for 32 dwelling houses, costing \$2,761,000; 153 tenement houses, costing \$22,267,200; 10 hotels, costing \$1,385,000; 73 store and loft buildings, costing \$13,658,000; 20 office buildings, costing \$19,790,000;

21 factories and workshops, costing \$3,629,000; 10 schoolhouses, costing \$1,225,500; five churches, costing \$380,000; 9 municipal buildings, costing \$504,000; 100 places of amusement, costing \$6,321,875; 38 stables and garages, costing \$974,400; 5 hospitals, costing \$880,000, and 96 other structures, costing \$194,710.

TRINITY BUILDING TENANTS.

The United States Realty & Improvement Company has leased offices in the Trinity Building at 111 Broadway to the law firm of Dyckman, Oeland & Kahn, of which former Judge Edgar M. Cullen is a partner.

\$460,000 IN NEW APARTMENTS.

Four to Be Built on the Heights and Two in Harlem.

The first building plan to be filed this year was put on record yesterday by George F. Pelham, who plans four five story apartment houses for the west side of Northern avenue from 179th to 180th street, to cost \$210,000. The houses will be built by the Haven Construction Corporation, of which Charles Flaum is president. Two of these buildings will each have a frontage of 50 feet and a

depth of 85.6 feet, and two will be 75x99. The facades will be of brick with limestone trimmings. Two buildings will cost \$90,000 each and two \$65,000 each.

NEW APARTMENTS FOR 111th ST.

Gronenberg and Leventag, architects for the 111th Street Construction Corporation, Samuel Rosoff, president, have filed plans for the construction of two five story apartment houses on 111th street, one at 40 to 41 West and the other at 32 to 33 West, each having a frontage of 87.6 feet and a depth of 59.10 feet. The entire cost has been estimated at \$150,000.

More Excitement Created By 120 Foot Building Than Would Be Now by One of 1,000 Feet ---Some of Its Forgotten Romance

The second steel frame building in this city was not much of an improvement on the first. It was erected and still stands at 25 Pine street next to the Sub-Treasury. It is a ten story structure occupying a lot 24 feet 2 inches wide and 74 feet 4 inches deep. It was started just as the Tower Building was being completed. Real progress was made, however, when in 1890 the Columbia Building was erected at 29 Broadway, corner of Morris street. It is twelve stories or 145 feet high, and for a long time it stood out as the most prominent and most successful steel frame building in New York. Its columns are of steel and its outer brick walls are twelve inches thick.

After the three buildings which have been mentioned showed that steel frame construction was safe, practical and economical all older forms were abandoned in sections where land values were high and space limited. Steel frame buildings of greater area and greater height followed in quick succession. The Manhattan Life Building was the first step toward the buildings which to-day would be considered skyscrapers. It was the first structure too of the modern kind to have a high tower surmounting the principal part of the building.

With the erection of the American Surety Building in 1897 the first building of more than twenty stories appeared, and the first structure more than 300 feet high. It just went over both of these marks, for it contains twenty-one stories and is 312 feet high above the sidewalk. Its glory as the tallest structure was short lived, however, for it was only a year later that the Park Row Syndicate Building was started with its twenty-six stories and its 386 feet of height, destined to be the giant among giant buildings until the Singer folks conceived the idea of putting up the original skyscraper tower on their plot at Broadway and Liberty street.

There are a good many interesting side lights on the growth of the skyscraper in New York, but none probably has more human interest than the story of Balthasar Kreischer, a naturalized American citizen and manufacturer of fire brick, who made possible construction to an almost unlimited height by inventing the hollow tile block which now is used universally in the construction of floors in fireproof buildings. Until Kreischer invented the hollow block all floors were supported by brick arches filled on top with cement to make them level and then covered with wood. The under side of the arches was left exposed. Kreischer's invention not only lightened the weight of each floor so that the steel frame was subjected to less pressure, but it made flat arches possible so that ceilings to-day are flat and not waved as of old. The invention was first used in the New York Post Office Building in 1872 and in the same year in a new structure in Chicago. The hollow tile system of floors was then adopted widely and came into use especially in the erection of early skyscrapers here.

Presently the matter of the patent on the block reached the courts, where a fight was waged for many years which resulted in the court ruling that the Kreischer patent was void for want of originality under the crucial test of publications from all parts of the globe. Through this ruling Kreischer was deprived of an almost unlimited revenue, for in later years his invention became and is now one of the principal needs in building construction.

With the increasing height and weight of buildings the matter of foundations became a serious problem which was solved in many ways until in 1880 the sinking of pneumatic caissons was adopted, which ever since has been the method employed in the erection of skyscrapers. The first high building foundations were laid on footings of stone or concrete laid upon the earth. In soft or marshy places where the safe sustaining strength of the ground was inadequate ranging timbers were resorted to or piles were driven to solid bearings. Later came the use of rolled steel rails and beams in the form of grillage resting on a bed of concrete. Still later the use of grillage was expanded until it covered the entire area of the lot or the space to be occupied by the building, like a large raft upon which the superstructure was erected.

When the Manhattan Life Building was erected in 1893 Francis H. Kimball faced the problem of not disturbing the existing adjoining heavy buildings on either side. By using a grillage on which to base his foundations it was feared he would start mud and quicksand flowing which might cause untold troubles. Looking about for an avenue of escape, he hit upon the pneumatic caisson, which had been used without the pneumatic feature in the construction of the Fifth Avenue theatre building. The caissons of the Manhattan Life Building were sunk thirty-two feet below the level of the main excavation, and on reaching rock bottom were filled with concrete. So came about the first caisson construction.

During the years that have intervened since the pioneer skyscraper builders worked out the problems told of here still more changes have come about to make the erecting of high buildings both safe and economical, but they merely supplement the improvement in the elevator, the use of the steel skeleton, the invention of the hollow tile and the adoption of the pneumatic caisson.

The New Pan American Building, the giant that is soon to rise to take the place that the Tower Building held a quarter of a century ago, will in all likelihood be the last building of its type, for it will not be long before legislation will be enacted which will make such structures impossible. The plans filed for the building are merely tentative and will be subjected to considerable modification. So that the building might not come under the ban the plans were rushed into the Bureau of Buildings on New Year's eve.